

OPTICAL IP SWITCHING ROUTER ARCHITECTURE

ABSTRACT OF THE DISCLOSURE

[0078] An optical Internet Protocol switching method and system are disclosed for switching data packets entirely in the optical domain. The method of the present invention includes the steps of receiving a plurality of data packets at an optical switch and extracting the header information for each data packet for processing at a control unit. The data packets can be demultiplexed at a plurality of demultiplexers and each data packet assigned a different internal wavelength. The method of the present invention can route each data packet to one or more delay buffers based on a current output status. The data packets can be combined into a single output from the delay buffers and broadcast to a plurality of outputs channels. The method of the present invention can select one or more data packets to output through at least one of the output channels and can convert the assigned internal wavelengths of the selected data packets to their original wavelength using a tunable wavelength converter. The selected data packets can be multiplexed together for transmission on an output Wave Division Multiplexing ("WDM") fiber.